

Appendix B

Environmental Regulations, Orders, Standards, and Permits

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Table B-1
Department of Energy Radiation Protection Standards
and Derived Concentration Guides ¹

Effective Dose Equivalent Radiation Standard for Protection of the Public

*Continuous exposure of any member of the public from routine activities:
All exposure pathways: 100 mrem/year (1 mSv/yr) effective dose equivalent*

**Department of Energy Derived Concentration Guides (DCGs) for
Inhaled Air or Ingested Water (μCi/mL)**

<i>Radionuclide</i>	<i>Half-life ² (years)</i>	<i>In Air</i>	<i>In Water</i>	<i>Radionuclide</i>	<i>Half-life ²</i>	<i>In Air</i>	<i>In Water</i>
H-3*	1.23E+01	1E-07	2E-03	Eu-152	1.36E+01	5E-11	2E-05
C-14*	5.73E+03	6E-09	7E-05	Eu-154*	8.80E+00	5E-11	2E-05
K-40	1.28E+09	9E-10	7E-06	Eu-155	4.96E+00	3E-10	1E-04
Fe-55	2.70E+00	5E-09	2E-04	Th-232	1.40E+10	7E-15	5E-08
Co-60*	5.27E+00	8E-11	5E-06	U-232*	7.20E+01	2E-14	1E-07
Ni-59	7.50E+04	4E-09	7E-04	U-233*	1.59E+05	9E-14	5E-07
Ni-63	1.00E+02	2E-09	3E-04	U-234*	2.44E+05	9E-14	5E-07
Sr-90*	2.86E+01	9E-12	1E-06	U-235*	7.04E+08	1E-13	6E-07
Y-90	7.31E-03	1E-09	1E-05	U-236*	2.34E+07	1E-13	5E-07
Zr-93	1.53E+06	4E-11	9E-05	U-238*	4.47E+09	1E-13	6E-07
Nb-93m	1.46E+01	4E-10	3E-04	Np-239	6.45E-03	5E-09	5E-05
Tc-99*	2.13E+05	2E-09	1E-04	Pu-238*	8.78E+01	3E-14	4E-08
Ru-106	1.01E+00	3E-11	6E-06	Pu-239*	2.41E+04	2E-14	3E-08
Cd-113m	1.37E+01	8E-12	9E-07	Pu-240*	6.57E+03	2E-14	3E-08
Sn-126	1.00E+05	1E-10	8E-06	Pu-241	1.44E+01	1E-12	2E-06
Sb-125	2.77E+00	1E-09	5E-05	Am-241*	4.32E+02	2E-14	3E-08
Te-125m	1.59E-01	2E-09	4E-05	Am-242m	1.52E+02	2E-14	3E-08
I-129*	1.57E+07	7E-11	5E-07	Am-243	7.38E+03	2E-14	3E-08
Cs-134*	2.06E+00	2E-10	2E-06	Cm-243	2.85E+01	3E-14	5E-08
Cs-135	2.30E+06	3E-09	2E-05	Cm-244	1.81E+01	4E-14	6E-08
Cs-137*	3.02E+01	4E-10	3E-06	Gross Alpha	NA	2E-14	3E-08
Pm-147	2.62E+00	3E-10	1E-04	(as Am-241)			
Sm-151	9.00E+01	4E-10	4E-04	Gross Beta	NA	9E-12	1E-06
				(as Sr-90)			

¹ DOE Order 5400.5 (February 8, 1990). Effective May 8, 1990. (See Derived Concentration Guides, p. 1-6, in Chapter 1, Environmental Monitoring Information.)

² U.S. Department of Energy. 1981. Radioactive Decay Tables. Washington: D.C.: Technical Information Center, U.S. Department of Energy.

* Radionuclides measured in WVDP effluent. NA - Not applicable.

Table B - 2

Environmental Regulations, Orders, and Standards

The following environmental standards and laws are applicable, in whole or in part, to the West Valley Demonstration Project:

Atomic Energy Act of 1954, 42 USC§ 2011 *et seq.*

DOE Order 231.1, September 30, 1995. *Environment, Safety, and Health Reporting*, including Change 2 (November 7, 1996).

DOE Order 232.1, September 25, 1995. *Occurrence Reporting and Processing of Operations Information*, including Change 2 (August 12, 1996).

DOE Order 5400.1, November 9, 1988. *General Environmental Protection Program*, including Change 1 (June 29, 1990).

DOE Order 5480.1B, September 23, 1986. *Environment, Safety, and Health Program for DOE Operations*, including Change 5 (May 10, 1993).

DOE Order 5484.1, February 24, 1981. *Environmental Protection, Safety, and Health Protection Information Reporting Requirements*, including Change 7 (October 17, 1990).

DOE Regulatory Guide DOE/EH-0173T, January 1991. *Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance*.

Clean Air Act (CAA). Pub. L. No. 84-159. 42 USC§ 7401 *et seq.*, as amended, and implementing regulations.

Federal Water Pollution Control Act [Clean Water Act (CWA)]. Pub. L. No. 95-217. 33 USC §1251 *et seq.*, as amended, and implementing regulations.

Resource Conservation and Recovery Act (RCRA). Pub. L. No. 94-580. 42 USC §6901 *et seq.*, as amended, and implementing regulations.

National Environmental Policy Act (NEPA) of 1969. Pub. L. No. 91-190. 42 USC §4321 *et seq.*, as amended, and implementing regulations.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Pub. L. No. 96-510. 42 USC §9601 *et seq.* (including Superfund Amendments and Reauthorization Act of 1986), and implementing regulations.

Toxic Substances Control Act (TSCA). Pub. L. No. 94-469. 15 USC §2601 *et seq.*, as amended, and implementing regulations.

Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986. Pub. L. No. 99-499. 42 USC §11001 *et seq.*, and implementing regulations.

Safe Drinking Water Act (SDWA). Pub. L. No. 93-523. 42 USC §300f *et seq.*, as amended, and implementing regulations.

Environmental Conservation Law of New York State, and implementing regulations (NYCRR).

The standards and guidelines applicable to releases of radionuclides from the West Valley Demonstration Project are found in DOE Order 5400.5 (February 8, 1990), including Change 2 (January 7, 1993).

Water quality standards contained in the State Pollutant Discharge Elimination System (SPDES) permit issued for the facility are listed in Table C-5.1. Airborne emissions are regulated by the Environmental Protection Agency under the National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR §61 Subpart H (December 15, 1989).

The above list covers the major activities at the West Valley Demonstration Project but does not constitute a comprehensive enumeration.

Table B-3
West Valley Demonstration Project Environmental Permits

Permit Name and Number	Agency/Permit Type	Description	1997 Changes	Status
West Valley Demonstration Project Part A Permit Application	NYSDEC	Provides Interim Status under RCRA for treatment and storage of hazardous waste	None	No expiration date.
Boilers (042200-0114-00002 and (042200-0114-00003)	NYSDEC/ Certificate to Operate (CO) an Air Emission Source (2 COs)	Boilers located in the utility room	None	COs issued 11/30/90. No expiration date. Extended indefinitely in accordance with revised Title 6 NYCRR § 201, which went into effect 7/7/96.
Cement storage silo ventilation system (042200-0114-CSS01)	NYSDEC/CO	Exhaust from the cement storage silo baghouse	Exempted	Exempt source in accordance with NYSDEC negotiations and revised 6 NYCRR § 201.
Analytical & Process Chemistry Laboratory (042200-0114-15F-1)	NYSDEC/CO	Analytical & Process Chemistry Laboratory equipment from various laboratories in the main plant	Exempted	Exempt source in accordance with NYSDEC negotiations and revised 6 NYCRR § 201.
Tank #35157 vent (042200-0114-35157)	NYSDEC/CO	Vent from 3,000-gal sulfuric acid tank #35157	Exempted	Exempt source in accordance with NYSDEC negotiations and revised 6 NYCRR § 201.
Source-capture welding system (042200-0114-MS001)	NYSDEC/CO	Maintenance shop welding ventilation using “elephant trunk” ducts to vent welding fumes at the source of generation	None	CO issued 2/27/91. No expiration date. Extended indefinitely in accordance with revised 6 NYCRR § 201.
Blueprint machine (042200-0114-00012)	NYSDEC/CO	Blueprint machine vent for ammonia emissions	Exempted	Exempt source in accordance with NYSDEC negotiations and revised 6 NYCRR § 201.
Blower exhaust, welding only (042200-0114-00013) Welding/painting (042200-0114-00014) Painting only (04220-0144-00015)	NYSDEC/CO (3 COs)	Portable blowers (some with and some without filters) for venting emissions from typical painting and welding operations occurring at the site	One CO cancelled	Welding CO (-00013) issued 1/31/94. Painting CO (-00015) issued 5/4/93. No expiration date. Extended indefinitely in accordance with revised 6 NYCRR § 201. Welding/painting CO (-00014) cancelled.
Analytical cell mock-up unit (042200-0114-00027)	NYSDEC/CO	Analytical cell mock-up unit (located in the vitrification test facility) emissions from use of laboratory chemicals	Exempted	Exempt source in accordance with NYSDEC negotiations and revised 6 NYCRR § 201.
Scale vitrification system (SVS) solids transfer system (04220-0114-SVS01) SVS vessel vent system (042200-0114-SVS02) SVS mini-melter off-gas system (04220-0114-SVS04) SVS ammonia vent system (04220-0114-SVS07)	NYSDEC/CO (4 COs)	Scale vitrification system vac-u-max solids transfer system vent, feed mix tank vent, melter off-gas treatment system emissions, and ammonia vent system for relieving pressure before cylinder change-outs	None	Solids transfer system CO (-SVS01), vessel vent system CO (-SVS02), and ammonia vent system CO (-SVS07) issued 8/11/94. Mini-melter off-gas system CO (-SVS04) issued 6/26/92. No expiration date. Extended indefinitely in accordance with revised 6 NYCRR § 201.

Table B-3 (continued)
West Valley Demonstration Project Environmental Permits

Permit Name and Number	Agency/Permit Type	Description	1997 Changes	Status
Environmental Analytical Annex laboratory hoods (042200-0114-00016) through 042200-0114-00026)	NYSDEC/CO (11 COs)	Eleven separate blowers for laboratory hoods and analytical equipment in the Environmental Analytical Annex (EAA), i.e., vitrification cold operations laboratory	Exempted	Exempt source in accordance with NYSDEC negotiations and revised 6 NYCRR § 201.
Cold chemical solids transfer system (042200-0114-CTS02) Cold chemical vessel vent system (042200-0114-CTS03) Cold chemical vessel dust collection hood (042200-0114-CTS04)	NYSDEC/CO (3 COs)	Cold chemical facility. Dry or solid chemical emissions from solids transfer system and dust collection hood and from mix-tank vent for vitrification operations.	None	Solids transfer system CO (-CTS02) and vessel dust collection hood CO (-CTS04) issued 1/8/92. Vessel vent system CO (-CTS03) issued 10/26/95. No expiration date. Extended indefinitely in accordance with revised 6 NYCRR § 201.
Vitrification facility heating, ventilation, and air conditioning (HVAC) system (042200-0114-15F-2)	NYSDEC/CO	Canister-welding emissions vented through vitrification facility HVAC system, i.e., canister-welding ventilation	None	CO issued 10/26/95. No expiration date. Extended indefinitely in accordance with revised 6 NYCRR § 201.
Vitrification off-gas treatment system (04220-0114-15F-1)	NYSDEC/CO	Vitrification facility off-gas treatment system emissions	None	CO issued 5/2/97. No expiration date. Extended indefinitely in accordance with revised 6 NYCRR § 201
Slurry-fed ceramic melter (modification to WVDP-687-01)	EPA/NESHAP	Slurry-fed ceramic melter radionuclide emissions	Submitted final report on total effective dose equivalent to the EPA 1/7/97	Permit approved February 18, 1997. No expiration date.
Vitrification facility HVAC system	EPA/NESHAP	Vitrification facility HVAC system for radionuclide emissions	None	Permit approved February 18, 1997. No expiration date.
01-14 building ventilation system (WVDP-187-01)	EPA/NESHAP	Liquid waste treatment system ventilation of radionuclide emissions in the 01-14 building	None	Issued 10/5/87. Modified 5/25/89. No expiration date.
Contact size-reduction facility (WVDP-287-01)	EPA/NESHAP	Contact size-reduction and decontamination facility radionuclide emissions	None	Issued 10/5/87. No expiration date.

Table B-3 (concluded)
West Valley Demonstration Project Environmental Permits

Permit Name and Number	Agency/ Permit Type	Description	1997 Changes	Status
Supernatant testment system (WVDP-387-01)	EPA/NESHAP	Supernatant treatment system ventilation for radionuclide emissions	None	Issued 10/5/87. No expiration date.
Low-level waste supercompactor (WVDP-487-01)	EPA/NESHAP	Low-level waste supercompactor ventilation system for radionuclide emissions	None	Issued 10/5/87. No expiration date.
Outdoor ventilated enclosures (WVDP-587-01)	EPA/NESHAP	Ten portable ventilation units for removal of radionuclides	None	Issued 12/22/87. No expiration date.
Process building ventilation system (WVDP-687-01)	EPA/NESHAP	Original main plant ventilation for radionuclide emissions	Modification to include slurry-fed ceramic melter approved 2/18/97.	Issued 12/22/97. No expiration date.
State Pollutant Discharge Elimination System (NY-0000973)	NYSDEC/ Water discharge	Covers discharge to surface waters from various sources on-site	None	Expires 2/1/99. Renewed permit issued 2/1/95. NYSDEC has prepared a draft permit modification for storm water discharges and for a groundwater recovery system discharge increase, which is currently undergoing final preparation by NYSDEC. Awaiting comments and/or draft permit modification.
Buffalo Pollutant Discharge Elimination System (95-05-TR096)	Buffalo Sewer Authority/ Sanitary sewage and sewage sludge disposal	Permit issued to hauler of waste from the wastewater treatment facility	Renewed 5/7/97	Hauler must renew permit by 6/30/98.
Chemical bulk storage (9-000158)	NYSDEC/ Chemical bulk storage tank registration	Registration of bulk storage tanks used for listed hazardous chemicals	None	Permanently closed one nitric acid storage tank. Registration expires 7/5/99. Will renew before expiration.
Petroleum bulk storage (9-008885)	NYSDEC/ Petroleum bulk storage tank registration	Registration of bulk storage tanks used for petroleum	None	Added a 2,000-gallon aboveground gasoline tank and a 1,000-gallon aboveground diesel fuel tank. Expires 9/2/01. Will renew before expiration.
Bird depredation permit	New York State Division of Fish and Wildlife	State license for the removal of inactive nests of migratory birds	The WVDP no longer is required to file for a U.S. Fish and Wildlife permit for these activities.	State license will expire 12/31/98.